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THE EFFECT OF INDIVIDUAL HR DOMAINS ON FINANCIAL PERFORMANCE: EVIDENCE FROM BELGIAN SMALL BUSINESSES

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Abstract

The contribution of this study, which assesses the influence of HRM on financial performance, is fourfold. (1) We assess the relative contribution of different HR domains to organizational performance. By controlling for the overall HRM intensity in all analyses we try to meet one of the most striking shortcomings of 'single HR practice research', namely the neglect of the potential simultaneity that might exist with other HR practices. (2) By studying small Belgian companies, we focus on the importance of HRM for small business management. (3) Relying on bankruptcy prediction models, we optimize the conceptualization of financial performance. (4) Using structural equation modeling, we try to capture the mediating effect of operational performance on the relationship between HRM and financial performance. The analyses indicate mixed results for different HR domains with regard to their impact on operational and financial performance.

Key words: HR domains, operational performance, financial performance

1. Introduction

Interest in the link between HRM and organizational performance has risen sharply over the past decade. The status quaestionis formulated in various critical overviews shows that, despite a rich research tradition, many conceptual flaws, black boxes and empirical gaps remain. We quote some of these points.

Looking at existing research, we see that two options are widely used to study the relationship between HRM and performance on an organizational level (Wright & Boswell, 2002). Some researchers study the link between an extended set of HR practices and performance. In this type of research so-called 'good practices' are integrated into one index. A well-known example is Huselid's (1995) 'HR Sophistication Index'. Other researchers have tried to focus on the added value of individual practices, such as performance-related pay (e.g. Gerhart & Milkovich, 1992) or staffing practices (e.g. Terpstra & Rozelle, 1993). However, the empirical robustness of both options has been questioned. The former option has been criticized because of a lack of consistency between different studies with regard to the choice of best practices (Becker & Gerhart, 1996). The empirical validity of studies using the latter option has been questioned because they have not taken into account the potential simultaneity that might exist with other HR practices (Wright & Boswell, 2002). Therefore, explicit efforts to improve the validity of empirical research into the HRM-performance link seem to be necessary.

Most research into the HRM-performance link is limited to larger organizations while small businesses receive little attention. Given their statistical predominance - firms with less than 50 employees count for 98.9% of all firms in the European Union (ENSR, 1997) – the exclusion of small businesses poses a serious threat on the generalizability of research findings. Moreover, small companies represent an ideal field for studying the relationship between the implementation of specific management practices and organizational performance, precisely because of their more transparent nature (Aldrich & Auster, 1986).

Finally, the operationalization of organizational performance can be questioned. The selection of performance measures is rarely adequately substantiated in HRM-performance studies. The appropriateness of performance measures will vary with the level of analysis, but in each case the focus should be on measures that have inherent meaning for a particular context or research setting (Becker & Gerhart, 1996). Shareholder value for instance may very well be an appropriate measure for larger companies with a notation on the stock exchange. But one can doubt its appropriateness for small, family owned businesses.

In this paper we aim at furthering research on the link between HRM and firm performance by providing an answer to these shortcomings. First, by making a theoretically sound selection of HR domains and by controlling for the presence of other HR domains within the different models, we try to conduct a robust assessment of the relative contribution of different HR domains to organizational performance. Second, considering Belgian small enterprises (defined as organizations with at most 100 employees), we are aiming at a research population that has been neglected to a large extent. Thirdly, we want to develop performance measures suitable for studying the HRM-performance link in small businesses.

The further outline of this paper is as follows. First, we review the HRM-performance and the small business literature in order to develop a conceptual framework linking the different HR domains to financial performance. Second, research hypotheses are formulated. We then clarify our method, sample and measures and elucidate the results. We close with a discussion of the contribution of the different HR domains to the success of small businesses and with some suggestions for future research.

2. Linking HRM and performance: theoretical issues

2.1. Focus of research

Wright and Boswell (2002) distinguish between HRM research that uses sets of HR practices versus research that focuses on individual practices. During the past decade research has started to focus on sets of HR practices. In this tradition it is believed that, to truly examine the impact of HR practices on any variable of interest, one must examine the entire system of HR practices (Delery, 1998). Individual practices are classified into conceptual categorizations, using statistical techniques such as factor and cluster analysis (Wright & Boswell, 2002). Aggregate measures are constructed for each category that can be used to assess the influence of different HR bundles (MacDuffie, 1995) on firm performance. This type of research has been criticized because of the lack of consensus with regard to the choice of good practices that have to be included into such an index (Becker & Gerhart, 1996). Huselid (1995) and MacDuffie (1995), for example, see performance-based compensation as an important feature of 'high performance employment systems', while Arthur (1994) links the absence of performance-based pay with 'high commitment HR systems'.

The impact of an individual practice independently of any other HR practices that might exist has been examined in a large number of studies. These studies have attempted to demonstrate the organizational impact of particular practices such as performance-related pay (Banker et al., 1996;

Gerhart & Milkovich, 1992), financial participation (Lawler III, 1999), participation in self-managing teams (Batt, 1999) and sophisticated staffing practices (Terpstra & Rozelle, 1993; Koch & McGrath, 1996). Wright and Boswell (2002) criticize these studies because they do not take into account the potential simultaneity that might exist with other practices. Disregarding this simultaneity increases the risk of getting spurious relationships between the studied HR practice and organizational performance or overestimating the effect of the focal variable (Milgrom & Roberts, 1995; Portales, 2002). To improve the validity of this type of research, other HR practices need to be controlled for (Wright & Boswell, 2002).

The purpose of this paper is to conduct a robust assessment of the relative contribution of different HR domains to organizational performance. Therefore, the use of one aggregated HR index was not an option in this study. After all, such an index only allows assessments of the overall HR intensity. Instead we focus on different HR domains. The Harvard model of HRM (Beer et al., 1984) guided our selection of the HR domains. We confined ourselves to six domains, each representing one of the central 'Harvard policy areas'. More specifically, we chose (1) selection, (2) training and (3) career management as HR domains representing the 'HR Flow' policy area; (4) compensation and (5) performance management as domains representing 'Reward Systems' and (6) participation as the HR domain indicating the 'Employee Influence' policies. In contrast to single practice research, we decided to select three strategic HR practices for each of the six domains identified. Strategic HR practices are those that are theoretically or empirically related to organizational performance (Delery & Doty, 1996). Separate analyses are conducted for each of the six HR domains. In order to control for the potential simultaneity that might exist with some of the other HR domains (Wright & Boswell, 2002), the overall HR intensity is controlled for in each of these analyses.

2.2. Performance measures

Three regularly recurring themes of debate in small business performance research are: (1) the choice between either operational (e.g. productivity, employee turnover) or financial performance (e.g. sales amount per employee, profits, shareholder value) measures (Harel & Tzafrir, 1999; Holloway et al., 1995; Miller & Lee, 2001), (2) the advantages and drawbacks of static versus dynamic measures and (3) the context-sensitivity of the most frequently used financial performance indicators. We elaborate on each of these important themes.

Operational versus financial performance. Most small business performance studies limit themselves to measures of either operational or financial performance. We plead for an integration of both types of measures. When comparing the ways in which different HR domains influence performance, it

is important to pay attention not only to traditional financial outcomes, but also to intermediate operational criteria that indicate how financial results are achieved (Fey et al., 2000). We depart from the assumption that HR practices have no direct impact on corporate financial results. Rather they influence firm resources, such as the human capital, or employee behavior. It is through the creation of a skilled, motivated and empowered work force that HR practices influence operational performance (Delaney & Huselid, 1996; Delery & Shaw, 2001). And it is through improved operational performance that higher levels of skill, motivation and empowerment influence financial results.

Static versus dynamic measures. Several authors plead for a dynamic view of performance, using growth related measures (Lee & Tsang, 2001; Wijewardena & Tibbits, 1999). We prefer a static measure of performance for two reasons. First, dynamic measures such as growth rates are difficult to develop. Choices have to be made regarding the indicator to be used (number of employees, revenue ...), the relative or the absolute measurement, and the time span (Delmar, 1997). Second, even if growth was easy to measure it could still be misleading. Not every small company has the ambition or the desire to grow. Additional financing and/or staff is needed for growing. Problems with or fear for not finding the necessary time and/or people are important reasons why a considerable number of small businesses choose not to pursue growth (Binks & Ennew, 1996).

Context-sensitivity. In identifying valid financial performance measures the focus should be on measures that have inherent meaning for the particular small business context. Given the high failure rates, survival is the primary concern for most small businesses, both for those that pursue growth as well as for the ones that do not. Therefore we decide to deduct our financial performance measures from bankruptcy prediction models (Maes et al., 2001). These models assume that the progress of the following three parameters must be monitored in order to obtain a sufficiently sound state of financial health: profitability, liquidity and solvency. *Profitability* reflects financial performance in the narrow sense, in particular the ability of the company to yield a return on investment. *Liquidity* relates to the settlement of short-term debts. A company will face financial problems if the funds are not available to pay off these debts. In the case of small businesses struggling to survive liquidity is a very important indicator of the state of financial health. *Solvency* indicates the financial strength of the company in the longer term ('buffer' for difficult times) and says something about the extent to which the organization is equipped to face business risks.

3. Research hypotheses

To summarize the previous discussions, we will use indicators of both operational and financial performance that are adapted as much as possible to the specificity of small businesses. We integrate two operational performance indicators in our model: productivity and voluntary turnover. The financial performance indicators - profitability, liquidity and solvency – are deducted from bankruptcy prediction models.

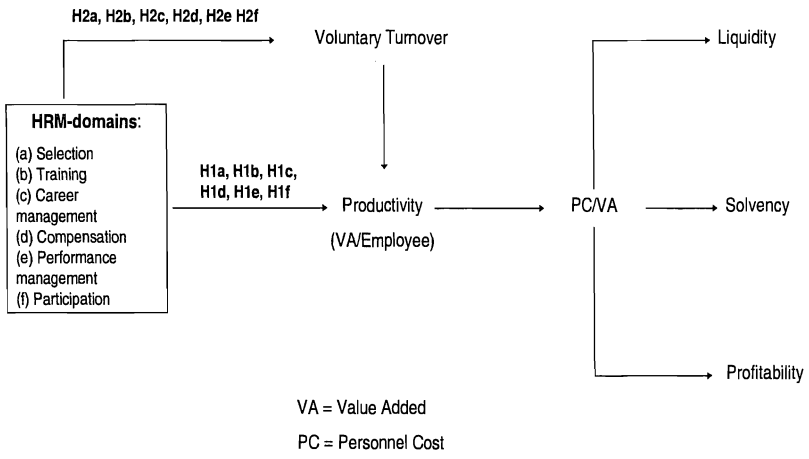

Figure 1 Illustration of research hypotheses

Our theoretical model is depicted in Figure 1. We elaborate on this model in two consecutive steps. First, we develop our research hypotheses concerning the effect of the respective HR domains on operational performance. Second, we explain the link between productivity and financial performance.

3.1. HRM and operational performance

In our theoretical model, we used *productivity* (value added per employee) as the central measure for operational performance. We assume that several sets of HR practices can influence productivity by changing employee competencies, levels of motivation and empowerment (Delery & Shaw, 2001). Past research indicated that the implementation of strategic oriented training

plans (Bartel, 1994), employee involvement techniques (Huang, 1997; Lawler III, 1999), performance reviews (Gerhart & Milkovich, 1992), financial participation (Kaufman, 1992), performance-related pay (Delaney & Huselid, 1996; Huang, 2001) and selection techniques with high predictive validity (Holzer, 1987) are all related to increased productivity. Thus, our first list of hypotheses can be stated as follows:

H1a: The use of a comprehensive set of selection practices has a positive impact on productivity.

H1b: A comprehensive approach to training has a positive impact on productivity.

H1c: The use of a varied set of career management practices has a positive impact on productivity.

H1d: The use of a comprehensive set of compensation practices has a positive impact on productivity.

H1e: An intensive use of performance management practices has a positive impact on productivity.

H1f: The use of a varied set of participation practices has a positive impact on productivity.

As becomes clear from the theoretical model, we assume that certain HR domains can affect productivity through reduced *voluntary employee turnover* as well (Arthur, 1994; d'Arcimoles, 1997; Dess and Shaw, 2001). Research on the determining factors of voluntary turnover indicates that specific HR practices can strengthen retention, e.g. the pay level (Lawler & Jenkins, 1992; Kaufman, 1992), employee participation (Huang, 1997, 2001; Wagner, 1994), career (Shaw et al., 1998) and training opportunities (Harel & Tzafrir, 1999). Therefore, we expect that the intensive development of the HR domains compensation, participation, career management and training can push down voluntary turnover. Huang (2001) found that performance management practices such as 360° appraisal and long-term oriented appraisal have a significant positive influence on employee morale. In this way, we can expect that a more intensive use of performance management practices will decrease the voluntary turnover rate. The use of a comprehensive set of selection practices can have a similar effect, especially if the potential 'person-organization fit' is taken into account in selection procedures (Cheng & Brown, 1998; Lado & Wilson, 1994; Pfeffer, 1994).

This brief overview indicates that all the HR domains studied are expected to lower voluntary turnover levels. Building on studies indicating that a decrease in voluntary turnover can stimulate productivity (Sheehan, 1993; Staw, 1980), we formulate the following hypotheses:

H2a: The use of a comprehensive set of selection practices has an indirect positive impact on productivity by lowering the voluntary employee turnover rate.

H2b: The implementation of a comprehensive approach to training has an indirect positive impact on productivity by lowering the voluntary employee turnover rate.
H2c: The use of a varied set of career management practices has an indirect positive impact on productivity by lowering the voluntary employee turnover rate.
H2d: The use of a comprehensive set of compensation practices has an indirect positive impact on productivity by lowering the voluntary employee turnover rate.
H2e: An intensive use of performance management practices has an indirect positive impact on productivity by lowering the voluntary employee turnover rate.
H2f: The use of a varied set of participation practices has an indirect positive impact on productivity by lowering the voluntary employee turnover rate.

3.2. *Linking operational and financial performance: the concept of 'value added'*

In modeling the link between productivity and financial performance value added plays a central role. This accounting concept, as opposed to the Anglo-Saxon system, is very familiar in the Belgian accounting system. It indicates what has been added in terms of value within the company itself, using its own production factors. This value added must be sufficient to pay staff and leave some resources over for investments, interest, taxes, other financial obligations and return for the owners (Maes et al., 2001).

Value added plays a key role in our line of argumentation since it is directly linked to productivity and serves as a mediator between productivity and the indicators of financial performance (profitability, liquidity and solvency). Higher productivity means that more value is added with the same number of employees. Since the personnel costs remain more or less constant if the number of employees is not changed, an increase in productivity will lead to a decrease in the share of personnel costs in the value added. The part of value added remaining after subtracting the personnel costs is to be used to compensate the other factors in the company. The higher this remaining part (or the lower the share of personnel costs in value added), the higher the margin that can be used to safeguard liquidity and solvency and the more that can be paid out to the owners (profitability).

3.3. *HRM and financial performance*

To summarize, we assume that several sets of HR practices (the six HR domains) can influence productivity (expressed as value added per employee) by changing employee competencies, levels of motivation and empowerment. Implementation of these HR practices also can affect productivity through reduced voluntary employee turnover. The higher the productivity, the lower the share of personnel costs in the value added. The lower the share of

personnel costs in the value added, the higher the margin that can be used to safeguard the company's liquidity, solvency and profitability.

H3*: Each of the selected HR domains has a positive total effect on profitability, liquidity and solvency. These effects are mediated by the operational performance scores and the share of personnel costs in value added.*

4. Sample and procedure

The database we use was constructed originally to support the VIONA project "Personnel policy in Belgian SMEs: a study of the characteristics of effective SME personnel policy". The focal point of this study was a survey of organizations with 10 to 100 employees. Companies were selected from the Belfirst database. This database also contains information on certified financial statements. This enabled the survey results to be enhanced using financial and operational data.

A disproportionally stratified random sample was used, with age and size as stratification variables. As far as age is concerned, a distinction was drawn between companies in existence for between 1 and 5 years, 6-10 years and 11 years or longer. Three strata of company size were identified: 10-19, 20-49 and 50-99 employees. This was a multiple-sector survey including four sectors (construction, service companies, trade companies and industrial companies).

Most HRM studies use the HR manager as the respondent. In this survey, the business manager was targeted as respondent. The simple management structure of most small businesses implies that this manager often has a clear view of the various management practices in the organization. This partly explains the low item non-response in this study. The questionnaires were distributed by post, with intensive telephone follow-up. This produced a total of 416 units (28% response), with a sufficiently high item response. In order to investigate any problems involving self-selection and sample bias, the response and non-response were compared at various ratios in conjunction with value added, profitability, solvency and liquidity. No significant differences were noted between the two groups for any of these ratios.

5. Measures

5.1. HR domains and practices

We used three HR practices for each of the six HR domains. These practices are represented in **Error! Reference source not found.**. For a more extensive description we refer to the research of Sels et al. (2002). Scores can be calculated per domain, on a scale of 0 to 3. A score of 0 indicates that the organization does not apply any of the domain practices; while a score of 3 means that the organization applies all three practices.

5.2. Measures of Financial Performance

The ratio for profitability used here is the *net return on equity*. This ratio compares profit (after interest payment) with the capital and reserves and therefore illustrates the profitability for shareholders or owners. We selected the *acid test* or *quick ratio* as an indicator of liquidity. This ratio illustrates liquidity in the narrow sense, excluding the value of stocks (which is important in a multiple sector setting) (Elliott & Elliott, 2001). Only the assets which can be most quickly converted into cash are expressed with respect to debts of at most one year. In this sense, the ratio produces a picture of the extent to which a company can redeem short-term debts, using immediately available funds, without having to make use of external funds (loans) or reserves. A ratio that functions as a "warning light" with regard to solvency is the *degree of auto-financing*. This ratio illustrates the relationship between reserves and results carried over on the one hand (the numerator) and total assets on the other hand (the denominator). A sufficient degree of auto-financing can be considered as vital for small businesses (Maes et al., 2001).

5.3. Measures of operational performance

The voluntary turnover rate is measured by the number of departures at employees' initiative in 1999 in proportion to the average number of staff in 1999. The value added per member of staff is used as an indicator for productivity. The value added is the difference between total operating results and the cost price of goods and services provided by third parties (external costs), which are necessary to achieve these results.

Table 1 Summary of HR practices used to construct HR domains

HR domains	Indicator 1	Indicator 2	Indicator 3
Selection	*Personnel planning* Examination of how many and what types of recruitment are needed in the medium term (approx. 1 year). No = 0; Yes = 1	*Types of selection technique* Predictors with high predictive validity are used (work sample tests, assessment centre, biographical questionnaire). No = 0; Yes = 1	*Evaluation of recruitment and selection process* The recruitment and selection activities of the company are systematically evaluated No = 0; Yes = 1
Training	*Provision of training* In 1999 the company provided training for its operational staff No = 0; Yes = 1	*Dedication to training plan* The company has a strategic training plan No = 0; Yes = 1	*Evaluation of training effects* Extent to which reactions, learning, behavioral and performance effects after company training are measured 10-point scale (=< 4) = 0; (> 4) = 1 (median)
Careers	*Internal labor market* The company offers operational staff the possibility of attaining a higher hierarchical level No = 0; Yes = 1	*Potential reviews* Appraisal system related to succession planning, concerned with what an individual will be capable of doing in the future No = 0; Yes = 1	*Horizontal mobility* The company offers operational staff the possibility of becoming active in other functional domains at the same level No = 0; Yes = 1
Compensation	*Benefits* Number of extra benefits which the company offers its employees 0 to 4 = 0; 5 or more = 1 (median)	*Performance-related pay* Part of the wage of blue and/or white-collar workers depends on individual performances or merit No = 0; Yes = 1	*Occasional bonus* Employees receive an occasional bonus, e.g. following an improvement in results No = 0; Yes = 1
Performance management	*Reward reviews* Appraisal procedure that relates to the allocation and attribution of awards, rewards and benefits No = 0; Yes = 1	*Evaluation system* Use of a system which specifies procedure and criteria for the appraisal process No = 0; Yes = 1	*Performance reviews* Appraisal procedure aimed at the development and motivation of staff by looking at how well he or she is doing No = 0; Yes = 1
Participation	*Indirect participation* Trade union representation present (whether or not in the form of a trade union delegation) No = 0; Yes = 1	*Financial participation* Blue and/or white-collar workers share in the profits or can participate financially in the company No = 0; Yes = 1	*Direct participation* Extent to which, e.g. via consultation, consideration is given to employees' opinions 10-point scale (< 7) = 0; (>= 7) = 1 (median)

5.4. Control variables

Wright and Boswell (2002) criticize studies that focus on the impact of individual HR practices because they do not take into account the potential simultaneity that might exist with other practices. Disregarding this simultaneity increases the risk of overestimating the effect of the focal HR practice. To improve the validity of single HR practice or HR domain research, other HR practices or domains need to be controlled for. That is why we include a dummy variable controlling for the overall HRM intensity in the organization. First, we added up the binary scores on each of the 18 HR practices. The mean value of this aggregate HRM variable turned out to be 7.24 on a maximum of 18. We then constructed a dummy variable, named 'HRM intensity'. All organizations scoring lower than 7.24 on the aggregate HRM variable received a value of 0, while the other businesses received a value of 1.

Because of potential industry differences in the use of HR practices (Sels et al., 2002) and in productivity, analyses in this study controlled for sector. Dummy codes representing four industries were created: construction sector, industrial sectors, service sectors, trade sectors. Dummy coding is necessary when bringing in nominal variables in path analysis (Hatcher, 1994). The construction sector was used as our point of reference. Firm size (number of employees) was included as a control because it may be associated with the use of HRM practices as well as with turnover and productivity. Larger organizations may be more likely to use sophisticated HRM practices and may experience lower levels of employee turnover owing to greater internal labor market opportunities (Guthrie, 2001). The age (number of years since start-up) was included to control for any advantages associated with increased time for the evolution or adoption of HRM practices or learning curve advantages in productivity (Guthrie, 2001; Harel and Tzafrir, 1999).

6. Analyses

We begin with a summary of some descriptive statistics, namely the means and standard deviation of the principal variables, as well as the correlations between these variables (see appendix 1). The mean scores for the HR domains vary between 0.99 (compensation) and 1.48 (training) on a maximum of 3. The high correlations between the respective HR domains underline the importance of controlling for the overall HRM intensity in single practice analyses. The correlation matrix gives a partial confirmation of our hypotheses. For example, while compensation, performance management, career management and training are positively related to productivity, the correlations with selection and participation do not prove significant.

In order to test the hypotheses, we used structural equation modeling with manifest variables (path analysis). Assessment of the correlation, the fit indices and the modification indices of the different models indicated that paths between liquidity and solvency and between solvency and profitability had to be added. After adding these paths, only the hypothesized models for the HR domains compensation and career management were still not satisfactory (Table 2). However, a profound analysis of the residual values allowed us to improve both models considerably. More specifically, we added two paths in the compensation model, namely (1) between compensation and share of personnel costs in the value added and (2) between compensation and profitability. In the career management model we added one path, namely between career management and solvency.

Table 2 Goodness of fit indices of different models

	Chi-square (p-value - H_0: datasupport the causal model)	**Bentler's Comparative Fit Index**	**Bentler & Bonnett's Non-normed Index**	**Bentler & Bonnet's Normed Fit Index**
Selection	0.84	1.00	1.04	0.99
Training	0.73	1.00	1.02	0.99
Career Management (1)	0.19	0.99	0.97	0.98
Career Management (2)	0.62	1.00	1.02	0.99
Compensation (1)	0.33	0.99	0.99	0.98
Compensation (2)	0.64	1.00	1.02	0.99
Performance Management	0.52	1.00	1.00	0.99
Participation	0.71	1.00	1.02	0.99

The final models contain no residual values that significantly differ from zero. This implies that the tested models successfully reflect the actual causal relationships between the different variables (Hatcher, 1994). The standardized path coefficients of the different models are listed in appendix 2. In the results section we interpret and explain the effects.

7. Results

7.1. The impact of HRM on operational performance

Table 3 shows the total effects of the different HR domains on productivity and voluntary turnover. These total effects have to be interpreted as the sum of

both direct and indirect effects of the different HR domains on the operational performance variables.

Table 3 Total effects of different HR domains on operational performance

	Total effect on productivity	Total effect on voluntary turnover
Selection	0.02	-0.07
Training	**0.18**	0.04
Career Management	**0.16**	-0.04
Compensation	**0.34**	-0.01
Performance Management	**0.15**	0.03
Participation	-0.09	**-0.17**

The standardized path coefficients representing the link between the different HR domains and productivity (see Table 7 – Table 12 in appendix 2) show that training (0.19), compensation (0.34), career management (0.15) and performance management (0.15) have a significant positive impact on productivity. Hence, hypotheses H1b, H1c, H1d and H1e are confirmed. The development of a more intensive approach to these four HR domains seems to translate into improved productivity (Delery & Shaw, 2001). Hypotheses H1a and H1f have to be rejected. The use of a comprehensive set of selection practices (0.02) and the use of a varied set of participation practices (-0.11) do not seem to influence productivity significantly.

Except for participation, none of the HR domains has a significant lowering impact on voluntary turnover. Therefore, we have to reject hypotheses H2a, H2b, H2c, H2d, and H2e. This result can partially be explained by the labor market situation at the time of the survey. The extreme shortage of qualified staff gave rise to high labor mobility. It is possible that this shortage was so extreme that retention efforts produced hardly any results, especially not in smaller companies which cannot compete with the labor conditions of the major players (Sels et al., 2000). Only the investment in participation practices seems to boost commitment to a level high enough to generate a decreasing effect on voluntary turnover.

We expected that higher voluntary turnover levels would translate into lower productivity. However, the relationship between voluntary turnover and productivity does prove significant in none of the models. Hence, the indirect effect of participation on productivity (via voluntary turnover) turns out to be rather low (0.015). This means that hypothesis H2f has to be rejected as well. A possible explanation for the absence of a significant relationship between voluntary turnover and productivity is that this relationship might be curvilinear rather than linear. In the innovation literature different researchers have proven that a moderate level of turnover maximizes product and process

innovation compared to low or high levels of turnover (Brown & Eisenhardt, 1995; Ancona & Caldwell, 1992; March, 1991). It is likely that the relationship between voluntary turnover and productivity has a similar non-linear function. Moreover, Guthrie (2001) found that employee turnover was associated with decreased productivity when the use of high-involvement work practices was high and with increased productivity when the use of these practices was low. Hence, the hypothesized linear relationship between voluntary turnover and productivity might be a too simplistic abstraction.

7.2. The impact of HRM on value added

Higher productivity implies that more value added is generated using the same number of employees. Since personnel costs remain (approximately) constant for the same number of employees, a rise in productivity will lead to a fall in personnel costs/value added. This explains the significant negative link between the two variables shown in all models (see Table 7 – Table 12 in appendix 2).

In our conceptual framework we assumed that high HR intensity has a positive impact on productivity and that higher productivity leads to a lower share of personnel costs in the value added. This means that the development of a comprehensive set of HR practices will ultimately lead to a decreased share of the personnel costs in the value added. Table 4, which illustrates the total effects of different HR domains on personnel costs/value added, confirms this assumption for the HR domains training, career management, compensation and performance management. This result is not surprising given the positive impact of these domains on productivity (cfr. supra).

Table 4 Total effects of different HR domains on personnel cost/value added

	Total effect on personnel cost/value added
Selection	-0.01
Training	**-0.11**
Career Management	**-0.10**
Compensation	**-0.13**
Performance Management	**-0.10**
Participation	0.06

We remind that, with regard to the compensation model, we had to add a direct path between compensation and personnel costs/value added. The coefficient of this path turns out to be positive and significant (0.09). This means that, in addition to the indirect negative effect (via productivity) on personnel costs/value added, the elaboration of a varied set of compensation practices also has a direct positive effect on personnel costs/value added. An

explanation for this direct relationship is that the introduction of performance-related pay or non-statutory benefits can directly increase the share of personnel costs in the value added. After all, these costs constitute part of personnel costs for accounting purposes. Notwithstanding this direct effect of compensation on the personnel costs/value added-ratio, the total effect remains substantially negative. This means that the indirect negative effect is considerably larger than the direct positive impact.

7.3. The impact of HRM on liquidity, solvency and profitability

In combination, the three factors profitability, solvency and liquidity form a set of indicators of the health and chances of survival of a company. In our conceptual framework we assumed that different HR domains do impact financial health since (1) the further development of these HR domains stimulates productivity, (2) increased productivity lowers the share of personnel costs in the value added and (3) this reduction in personnel costs/value added boosts profitability, solvency and liquidity (cf. the significant relationships in all models between personnel costs/value added on the one hand, liquidity, solvency and profitability on the other hand; for an extensive theoretical explanation of these relationships, see Sels et al., 2002). Table 5 lists the total effects of HR intensity on these financial parameters.

Table 5 Total effects of different HR domains on financial health of the organization

	Liquidity	Solvency	Profitability
Selection	0.00	0.00	0.00
Training	0.02	0.03	0.03
Career Management	0.02	**-0.12**	0.00
Compensation	0.03	0.03	**0.15**
Performance Management	0.02	0.03	0.02
Participation	-0.01	-0.01	-0.02

Since the HR domains 'selection' and 'participation' have no significant impact on productivity (cf. supra) it is not surprising that the selection domain has no effect and participation even has a minor negative effect on the financial health. The impact of the other HR domains on the financial health of small businesses is rather limited as well. The hypothesized mediated relationship between HRM intensity and financial performance remains absent for all the different HR domains. Although the development of HR domains such as training, compensation, career and performance management has a positive and significant impact on productivity, this effect does not seem large enough to substantially influence the financial health of small businesses.

We do find two substantive total effects: (1) a positive effect of the use of an elaborate set of compensation practices on profitability (0.12; Table 9 in appendix 2) and (2) a negative effect of using a varied set of career management practices on solvency (-0.15; Table 10 in appendix 2). However, these effects are not caused by the hypothesized paths (via productivity and personnel costs/value added). The models point at the existence of direct relationships between the respective variables.

The direct effect of the compensation practices on profitability means that these practices work not only by increasing productivity. The deployment of these compensation practices also affects profitability in other ways. We can assume that this direct relationship is a combined representation of all HRM effects that are not expressed via productivity or, in other words, that are produced through non-measured operational performance outcomes. After all, productivity is only one operational performance outcome that can be influenced by the introduction of a broader range of compensation practices. Other operational outcomes include, for example, the innovation rhythm, the quality of the product or service obtained, customer satisfaction, lead time, on-time delivery. In this sense, the explanatory model remains incomplete. It is a complex process to develop criteria for a cross-sector survey which enable the standardized measurement of all operational performance measures relevant. We learn from Table 5 that if we integrate both the direct and indirect effects (via productivity and personnel costs/value added) on profitability we end up with a strong and positive total effect of the use of the compensation practices on profitability (0.15).

As mentioned before, the career practices model shows a direct relationship between the intensive use of career management practices and solvency. The standardized path coefficient of this relationship turns out to be significant and negative (-0.15). A possible explanation is that, by investing in career management, an organization actually chooses to optimize its long-term internal human capital, instead of enhancing its long-term financial stocks (i.e. reserves). Hence, the further development of an organization's career management practices can indeed cause a significant decrease of its solvency position.

7.4. Impact of control variables

As mentioned before, we controlled for age, size, industry and overall HRM intensity in all the models. The impact of these control variables on the manifest variables is shown in Table 7 - 12 in appendix 2. The most interesting control variable in our current study is the overall *HRM intensity*. Given the strong correlations between the different HR domains, it is not surprising that we also find strong relations between the intensity of the total HR system and

the intensity of individual HR domains. More interesting is the systematically recurring strong positive effect of overall HRM intensity on profitability (except for the compensation model). This strong effect of overall HRM intensity is in strong contrast with the limited impact of individual HR domains. This finding supports the tendency in more recent HRM-performance research studies to treat multiple HR practices as a system (Wright & Boswell, 2002). The shared assumption is that multiple, rather than isolated, practices must be examined (Delery & Shaw, 2001).

8. Discussion

The purpose of this paper was to assess the contribution of different HR domains to organizational performance in Belgian small businesses. We used structural equation analysis to find out whether or not investing in selection, training, career management, compensation, participation and performance management has a substantial impact on the financial health of small businesses. The analyses show significant positive effects on productivity for several HRM domains, but these effects seem not strong enough to work through in higher profitability levels. Hence, the results show that the effects of the deployment of single practices or HR domains on the company's financial health are rather limited.

These findings are in contrast with most 'single practice' studies. However, most of these studies do not take into account the potential simultaneity that might exist with other HR practices. Disregarding this simultaneity increases the risk of overestimating the effect of single HRM practices or domains. The surplus value of our study (and the main difference with mainstream single practice research) is that we controlled for the overall HRM intensity in all the single HR domain analyses. Our finding that single HR practice or domain effects on profitability are poor when overall HRM intensity is controlled for, supports the intuition that earlier positive results on the contribution of individual HR practices have to be interpreted with caution.

Several limitations are pertinent to our study. The limitations, in turn, suggest some interesting avenues for future research. The main purpose of this study was to illustrate that different HR domains can influence performance in different ways. Therefore, we have chosen to assess the impact of each of the individual HRM domains separately. This implies that we could not take into account the occurrence of interaction effects between the different HR domains. We can expect that these interaction effects are of major importance if one wants to fully understand the HRM-performance link. Rynes et al. (2002), for example, emphasize that participation in decision-making will only bring along higher performance when performance management strategies are

incorporated that stress objective targets and supra-individual goals. Moreover, more 'configurational' oriented research (Arthur, 1994; Björkman & Xiucheng, 2002; Ichniowski et al., 1997; MacDuffie, 1995; Osterman, 1987) illustrates that the implementation of internally consistent bundles of HR practices from different HR domains will have a positive impact on organizational performance. Therefore, we believe that the construction of a configurational design, in which the possible occurrence of 'powerful connections' or 'deadly combinations' between different HR domains is accounted for, can give more accurate information on the contribution of different HR domains.

Second, we neglected the potential occurrence of time-lags. We focused on the short-term effects on operational and financial performance (using ratios for the year in which the survey was held). We can illustrate the potential drawback of this option by taking the career management domain as an example. Our results indicate that the deployment of several career management practices has a positive 'short-term' effect on productivity. It is reasonable to expect that the decision to invest in career management in one particular year will also act upon productivity levels in later years. This neglect of potential time lags might also explain why the effects on the financial parameters are rather limited. The use of statistical techniques such as distributed lag analysis (Judge et al., 1988; Ahuja, 2000) can be helpful in future research once financial data of more recent years are available.

In conclusion, this study shows that more empirical scrutiny is essential in HRM-performance research. The results strengthen the supposition that what seemed to be rather straightforward in earlier single practice research studies can be questioned to a large extent when one tries to be attentive to specific empirical shortcomings of these studies, more specifically the need to control for potential simultaneity with other HR practices and the use of context-specific performance measures.

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APPENDIX 1

Table 6: Descriptive Statistics

	Mean	s.d.	(1)	(2)	(3)	(4)	(5)	(6)
(1) Selection	1.32	0.95	1.00					
(2) Training	1.48	1.09	0.39***	1.00				
(3) Career Management	1.23	0.96	0.31***	0.38***	1.00			
(4) Compensation	0.99	0.90	0.22***	0.32***	0.35***	1.00		
(5) Performance Management	1.15	1.09	0.25***	0.39***	0.53***	0.35***	1.00	
(6) Participation	1.05	0.76	0.31***	0.28***	0.29***	0.35***	0.29***	1.00
(7) Voluntary Turnover	11.6%	15.6	-0.04	0.03	-0.03	-0.01	0.02	-0.15**
(8) Value added per member of staff	2230.6	1315.6	0.06	0.15**	0.14**	0.28***	0.15**	-0.01
(9) Personnel costs over value added	72.6%	19.9	0.00	-0.04	0.01	-0.08	-0.02	0.05
(10) Acid ratio test (liquidity indicator)	1.1	0.8	-0.02	-0.03	-0.03	0.02	-0.00	-0.01
(11) Degree of auto-financing (solvency)	14.7	21.4	-0.04	-0.02	-0.16**	-0.07	-0.09	-0.09
(12) Net profitability over capital and reserves	8.9	53.3	0.01	0.10	0.06	0.14**	0.14**	0.02

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Descriptive Statistics (continued)

	Mean	s.d.	(7)	(8)	(9)	(10)	(11)	(12)
(7) Voluntary Turnover	11.6%	15.6	1.00					
(8) Value added per member of staff	2230.6	1315.6	-0.08	1.00				
(9) Personnel costs over value added	72.6%	19.9	0.03	-0.63***	1.00			
(10) Acid ratio test (liquidity indicator)	1.1	0.8	-0.05	0.17**	-0.17**	1.00		
(11) Degree of auto-financing (solvency indicator)	14.7	21.4	-0.07	0.13*	-0.20***	0.50***	1.00	
(12) Net profitability over capital and reserves	8.9	53.3	0.02	0.15**	-0.23***	0.11*	0.16**	1.00

APPENDIX 2

Table 7: Standardized path coefficients for **selection** model (+ $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$)

Path from/to	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Selection							
(1) SEL		-0.07	0.01				
Operational performance							
(2) VET			-0.06				
(3) PRD				-0.61 ***			
Financial performance							
(4) PC/VAD					-0.21 ***	-0.13 **	-0.20 ***
(5) LIQ						0.47 ***	
(6) SOL							0.14 ***
(7) PRF							
Control variables							
(8) age	0.03	-0.06	0.03	-0.04	0.01	0.26 ***	-0.03
(9) size	0.08	-0.06	0.03	0.08 +	-0.02	-0.07	-0.05
(10) service sector	0.08	0.11	0.20 **	-0.03	-0.09	-0.10	-0.06
(11) trade sector	-0.03	-0.08	0.27 ***	-0.13 *	-0.27 ***	-0.12 *	-0.02
(12) industrial sector	-0.02	-0.10	0.15 *	-0.13 *	-0.20 **	-0.16 *	0.00
(12) HRM intensity	0.47 ***	0.06	0.03	0.07	-0.01	0.03	0.13 *

SEL = selection
VET = voluntary employee turnover
PRD = productivity
PC/VAD = personnel costs/value added
LIQ = liquidity
SOL = solvency
PRF = profitability

Table 8: Standardized path coefficients for **performance management** model (+ $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$)

Path from/to	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Performance management							
(1) PER		0.03	0.15 *				
Operational performance							
(2) VET			-0.09				
(3) PRD				-0.64 ***			
Financial performance							
(4) PC/VAD					-0.24 ***	-0.16 ***	-0.20 ***
(5) LIQ						0.45 ***	
(6) SOL							0.16 **
(7) PRF							
Control variables							
(8) age	-0.11 *	-0.08	0.04	-0.04	0.03	0.28 ***	-0.05
(9) size	-0.06	-0.07	0.06	0.08 +	-0.04	-0.08	-0.04
(10) service sector	0.01	0.12	0.14 *	-0.03	-0.10	0.12	-0.08
(11) trade sector	0.10 +	-0.07	0.27 ***	-0.09	-0.30 ***	-0.15 *	-0.02
(12) industrial sector	0.08	-0.08	0.11	-0.10 +	-0.21 **	-0.17 **	0.00
(12) HRM intensity	0.62 ***	-0.01	0.00	0.04	0.04	-0.02	0.14 **

SEL = performance management
VET = voluntary employee turnover
PRD = productivity
PC/VAD = personnel costs/value added
LIQ = liquidity
SOL = solvency
PRF = profitability

Table 9: Standardized path coefficients for **compensation** model (+ p < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.001)

Path from/to	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Compensation							
(1) COM		-0.01	0.34 ***	**0.09 +**			**0.12 ***
Operational performance							
(2) VET			-0.07				
(3) PRD				0.64 ** *			
Financial performance							
(4) PC/VAD					-0.22 ***	-0.15 ***	-0.19 ***
(5) LIQ						0.46 ***	
(6) SOL							0.16 **
(7) PRF							
Control variables							
(8) age	0.04	-0.06	0.01	-0.04	0.01	0.26 ***	-0.04
(9) size	-0.02	-0.07	0.04	0.08	-0.02	-0.07	-0.04
(10) service sector	0.09	0.11	0.17 **	-0.03	-0.09	-0.10 +	-0.03
(11) trade sector	0.10	-0.06	0.24 ***	-0.12 *	-0.28 ***	-0.14 *	0.00
(12) industrial sector	0.09	-0.09	0.11	-0.13 *	-0.20 **	-0.16 *	0.05
(12) HRM intensity	0.49 ***	0.02	-0.12 **	0.02	-0.01	-0.01	0.05

COM = compensation
VET = voluntary employee turnover
PRD = productivity
PC/VAD = personnel costs/value added
LIQ = liquidity
SOL = solvency
PRF = profitability

Table 10: Standardized path coefficients for **career management** model (+ p < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.001)

Path from/to	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Career Management							
(1) CAM		-0.04	0.15 *			**-0.15** **	
Operational performance							
(2) VET			-0.07				
(3) PRD				-0.61 ***			
Financial performance							
(4) PC/VAD					-0.22 ***	-0.15 ***	-0.22 ***
(5) LIQ						0.46 ***	
(6) SOL							0.15 **
(7) PRF							
Control variables							
(8) age	-0.05	-0.07	0.04	-0.04	0.01	0.25 ***	-0.03
(9) size	0.08	-0.07	0.02	0.08	-0.02	-0.06	-0.05
(10) service sector	0.03	0.11	0.19 **	-0.03	-0.09	-0.10	-0.06
(11) trade sector	0.07	-0.06	0.26 ***	-0.11 *	-0.28 ***	-0.12 *	-0.03
(12) industrial sector	0.06	-0.09	0.14 +	-0.12 *	-0.20 **	-0.15 *	0.00
(12) HRM intensity	0.59 ***	0.04	-0.05	0.06	-0.01	0.08	0.13 *

CAM = career management
VET = voluntary employee turnover
PRD = productivity
PC/VAD = personnel costs/value added
LIQ = liquidity
SOL = solvency
PRF = profitability

Table 11: Standardized path coefficients for **training** model (+ $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$)

Path from/to	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Training							
(1) TRA		0.04	0.18 **				
Operational performance							
(2) VET			-0.08				
(3) PRD				-0.61 ***			
Financial performance							
(4) PC/VAD					-0.22 ***	-0.15 ***	-0.22 ***
(5) LIQ						0.46 ***	
(6) SOL							0.15 **
(7) PRF							
Control variables							
(8) age	0.01	-0.06	0.02	-0.04	0.01	0.26 ***	-0.03
(9) size	0.09 +	-0.08	0.01	0.08	-0.02	-0.07	-0.05
(10) service sector	0.04	0.10	0.19 **	-0.03	-0.09	-0.10 +	-0.06
(11) trade sector	-0.05	-0.06	0.28 ***	-0.11 *	-0.28 ***	-0.14 *	-0.03
(12) industrial sector	0.01	-0.09	0.14 *	-0.12 *	-0.20 **	-0.16 *	0.00
(12) HRM intensity	0.55 ***	-0.01	-0.06	0.06	-0.01	-0.01	0.13 *

TRA = training
VET = voluntary employee turnover
PRD = productivity
PC/VAD = personnel costs/value added
LIQ = liquidity
SOL = solvency
PRF = profitability

Table 12: Standardized path coefficients for **participation** model (+ $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$)

Path from/to	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Participation							
(1) PAR		-0.17 **	-0.11				
Operational performance							
(2) VET			-0.08				
(3) PRD				-0.61 ***			
Financial performance							
(4) PC/VAD					-0.22 ***	-0.15 ***	-0.22 ***
(5) LIQ						0.46 ***	
(6) SOL							0.15 **
(7) PRF							
Control variables							
(8) age	0.03	-0.06	0.03	-0.04	0.01	0.26 ***	-0.03
(9) size	0.30 ***	-0.02	0.06	0.08	-0.02	-0.07	-0.05
(10) service sector	0.03	0.11	0.20 **	-0.03	-0.09	-0.10 +	-0.06
(11) trade sector	-0.01	-0.07	0.27 ***	-0.11 *	-0.28 ***	-0.14 *	-0.03
(12) industrial sector	0.09	-0.08	0.15 *	-0.12 *	-0.20 **	-0.16 *	0.00
(12) HRM intensity	0.41 ***	0.09	0.09	0.06	-0.01	-0.01	0.14 *

PAR = participation
VET = voluntary employee turnover
PRD = productivity
PC/VAD = personnel costs/value added
LIQ = liquidity
SOL = solvency
PRF = profitability